The background of the slide is a deep space image, specifically the Hubble Ultra-deep field, showing a vast number of distant galaxies and stars against a black background. The galaxies appear as small, colorful specks of light, some with distinct spiral or elliptical shapes, while others are more diffuse. The stars are represented by small, bright points of light, some with visible diffraction spikes.

# *Origin and Evolution of the Universe*

# **Natural Sciences 102**

**Hubble Ultra-deep field**

**Across the universe**

**Rocky Kolb   The University of Chicago   Spring 2004**

# Britney-Free Class



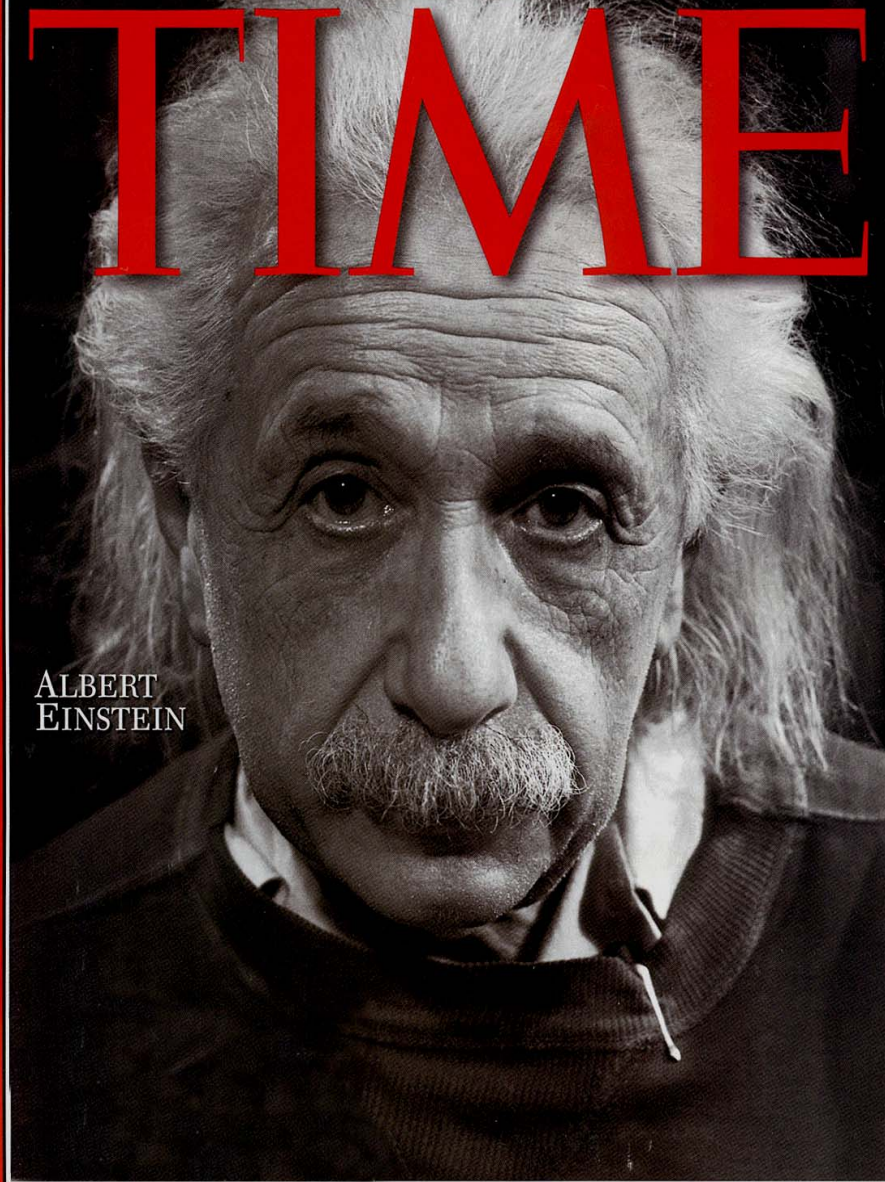
DECEMBER 31, 1999 \$4.95

www.time.com

# PERSON OF THE CENTURY

# TIME

ALBERT  
EINSTEIN



THE AUTHORIZED COMPANION TO  
THE PUBLIC TELEVISION SERIES



# Stephen Hawking's Universe

THE COSMOS EXPLAINED

DAVID FILKIN

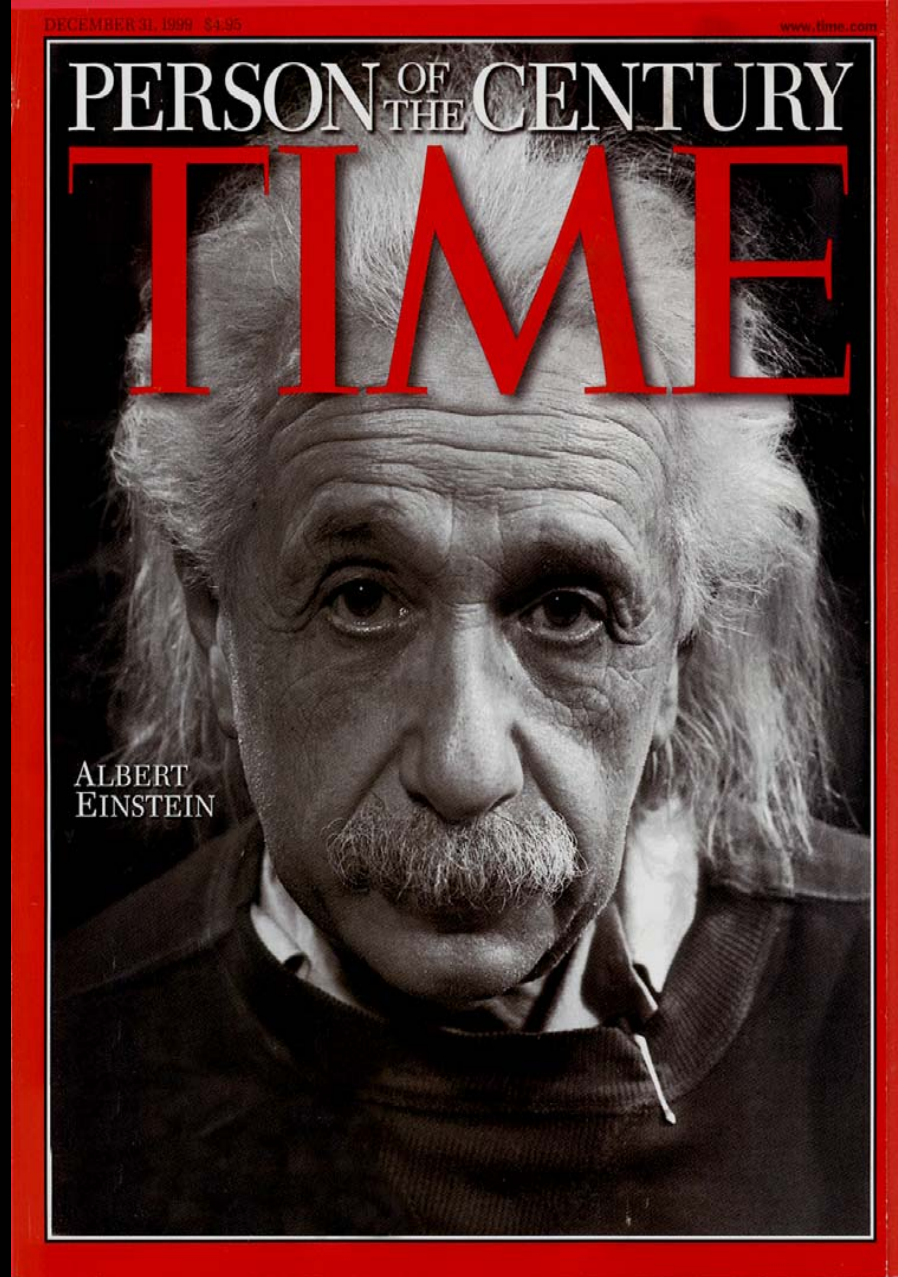
FOREWORD BY STEPHEN HAWKING

It's  
your  
universe  
too!





Einstein, ca. 1912




Einstein, ca. 1952



**"When the Special Theory of Relativity began to germinate in me, I was visited by all sorts of nervous conflicts... I used to go away for weeks in a state of confusion."**

**"A storm broke loose in my mind."**

**Einstein, ca. 1905**



**TUVA OR BUST!**

NEW YORK TIMES BESTSELLER

**"SURELY  
YOU'RE JOKING,  
MR. FEYNMAN!"**

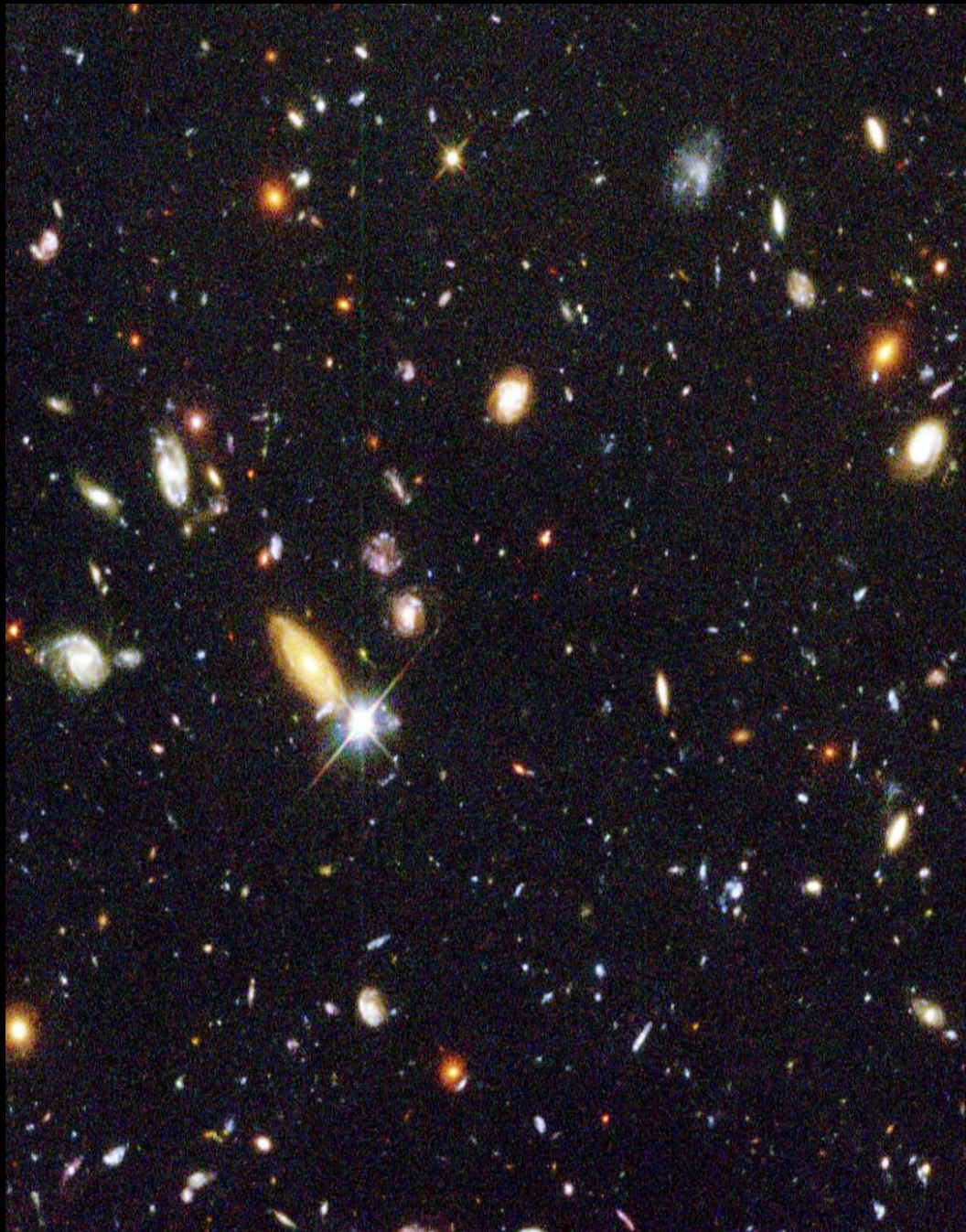
...

**Adventures  
of a Curious  
Character**

*"Quintessential Feynman—funny, brilliant, bowdy."—The New Yorker*

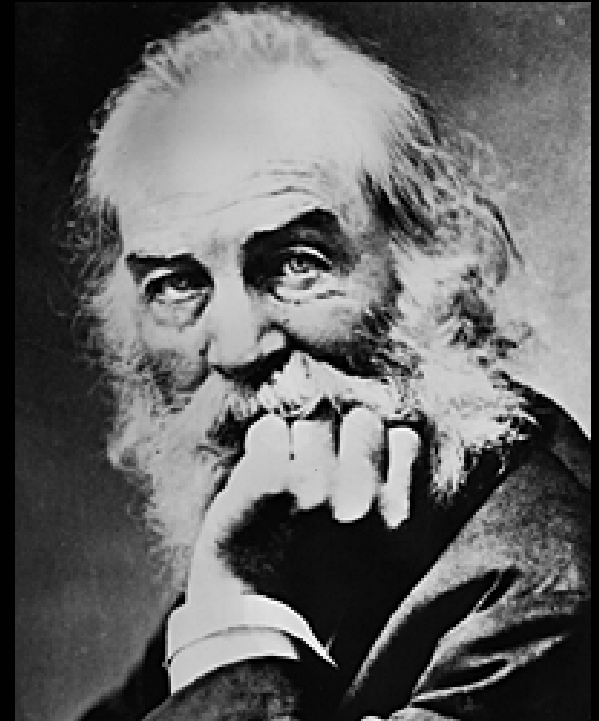
**RICHARD P. FEYNMAN**





**“To me every hour  
of the light and  
dark is a miracle.  
Every cubic inch  
of space is a  
miracle.”**

– Walt Whitman



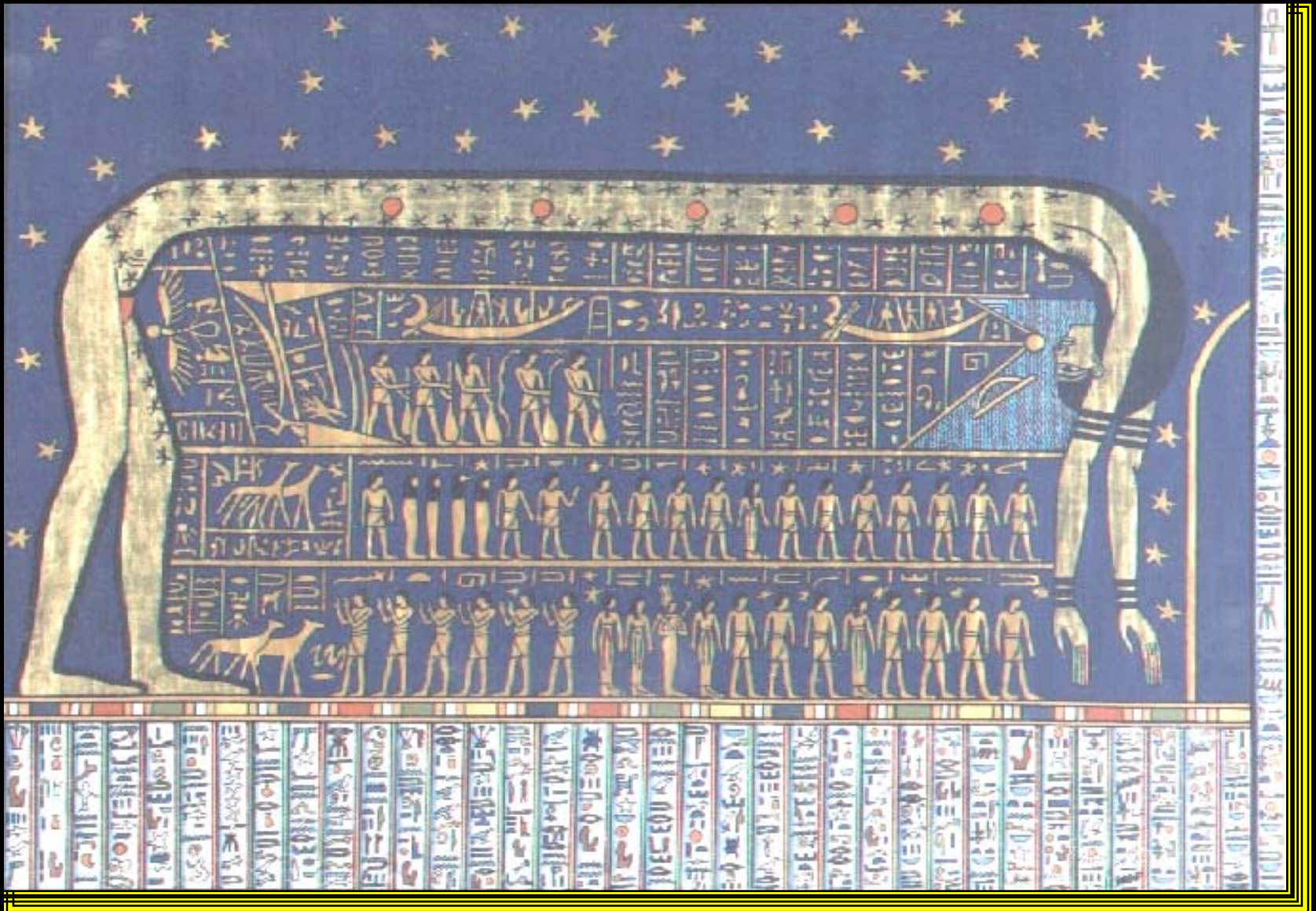
cosmology

cosmetology

*cosmos (κόσμος)*

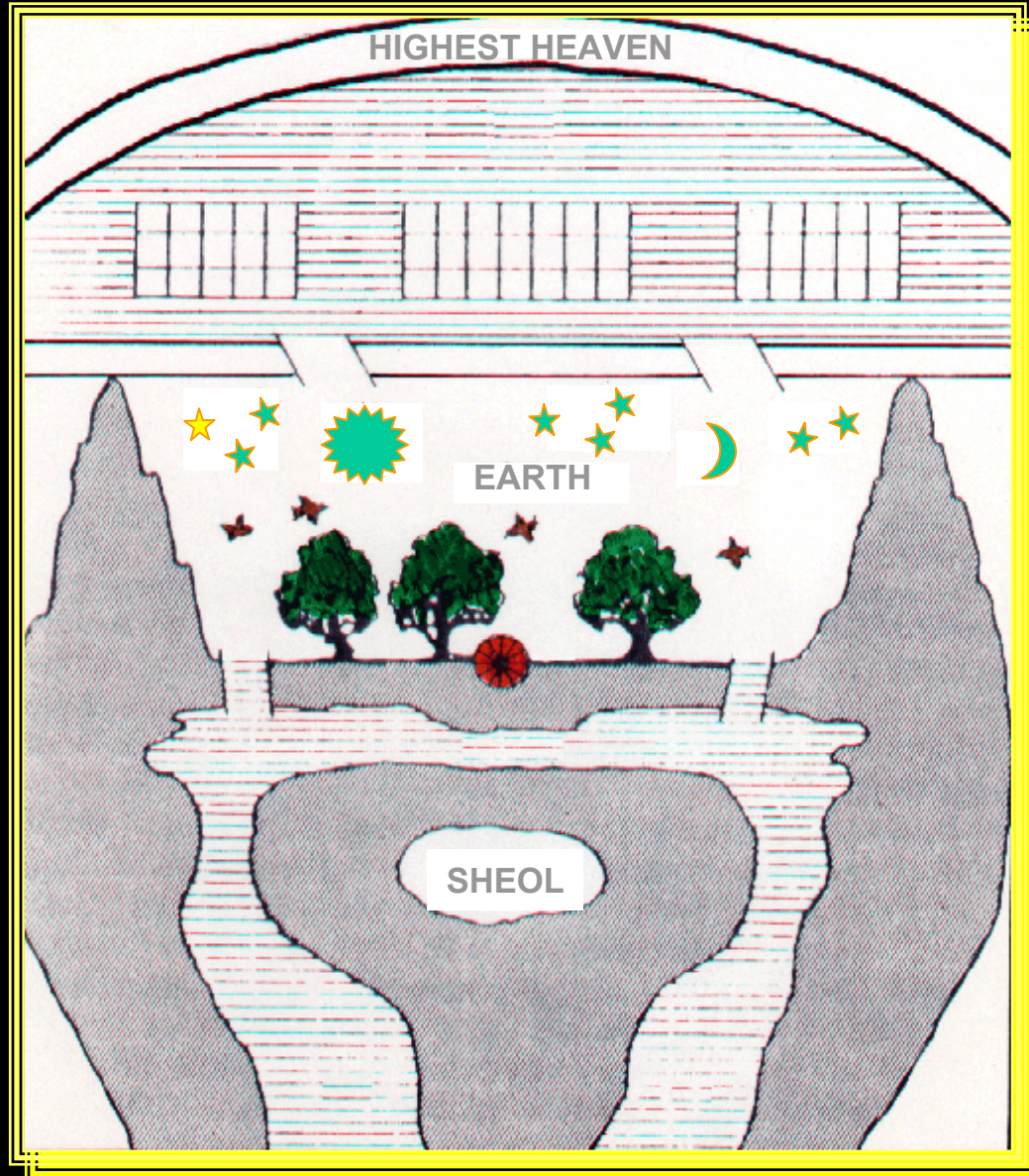


# A view of the universe, circa 2004 B.C.

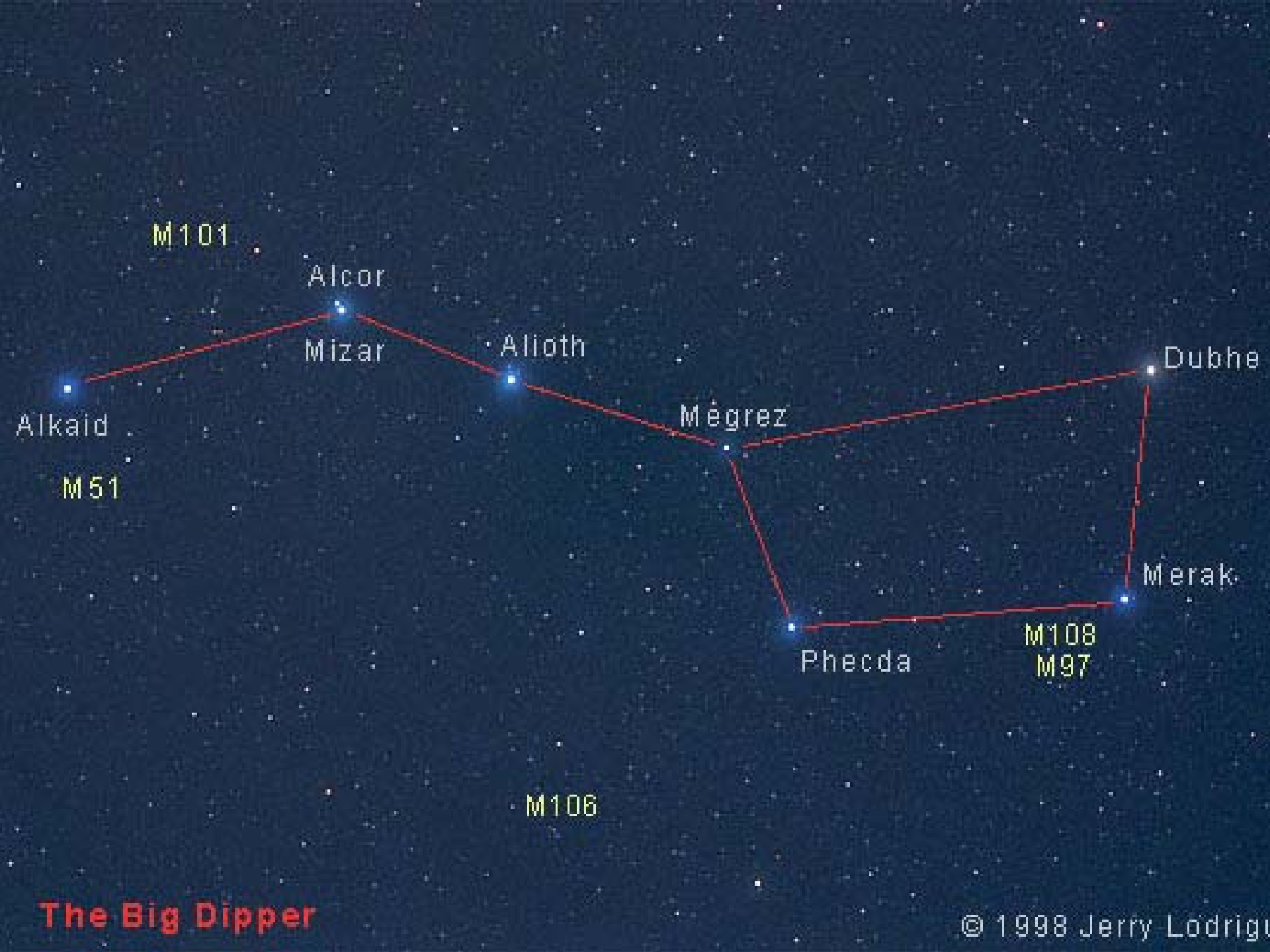




# A view of the universe, circa 1004 A.D.\*



\*and circa 2004 A.D. in parts of Kansas



M101

Alcor

Mizar

Alioth

Megrez

Dubhe

Merak

Phecda

M108  
M97

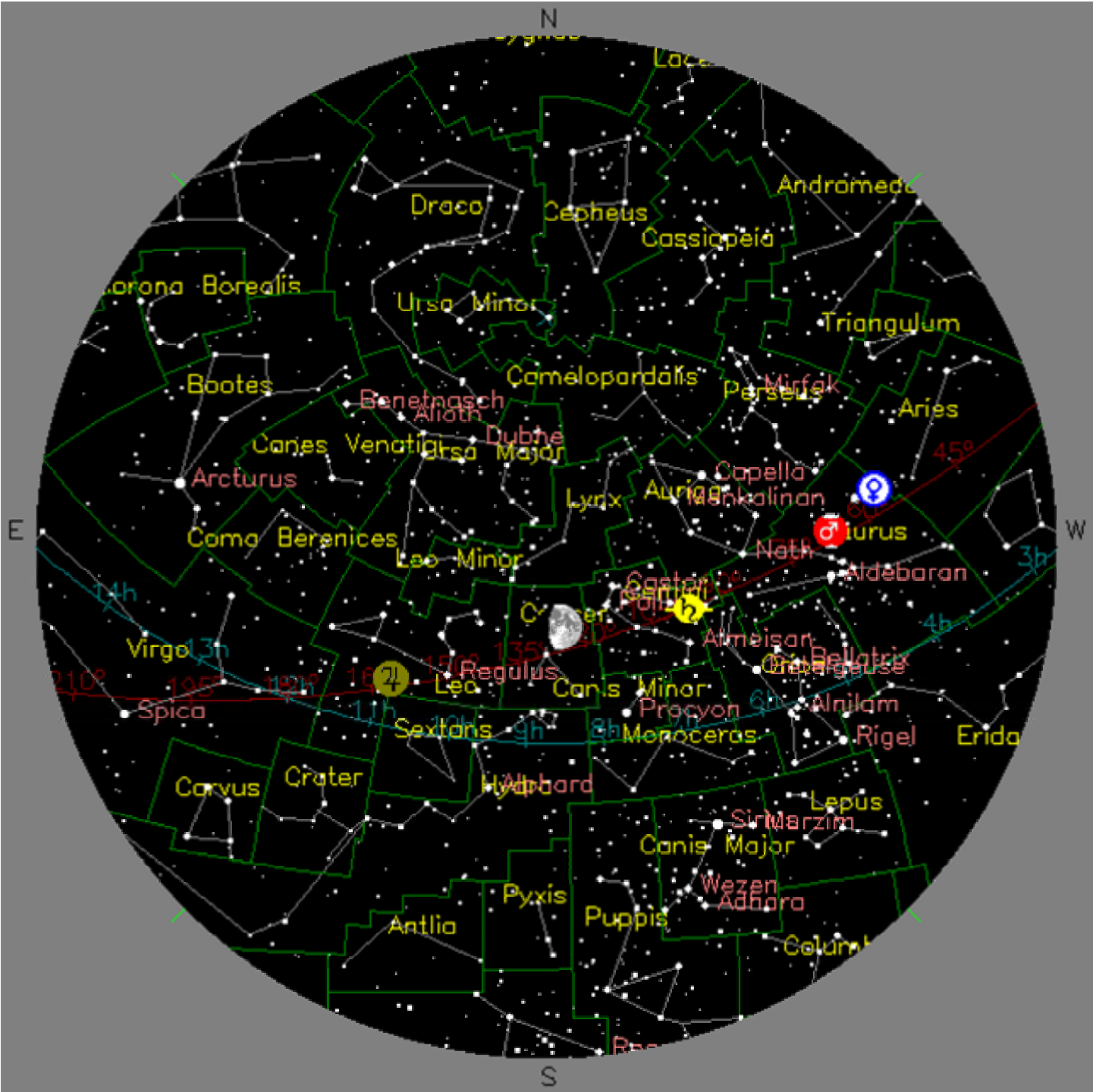
M106

M51

**The Big Dipper**

© 1998 Jerry Lodrigua

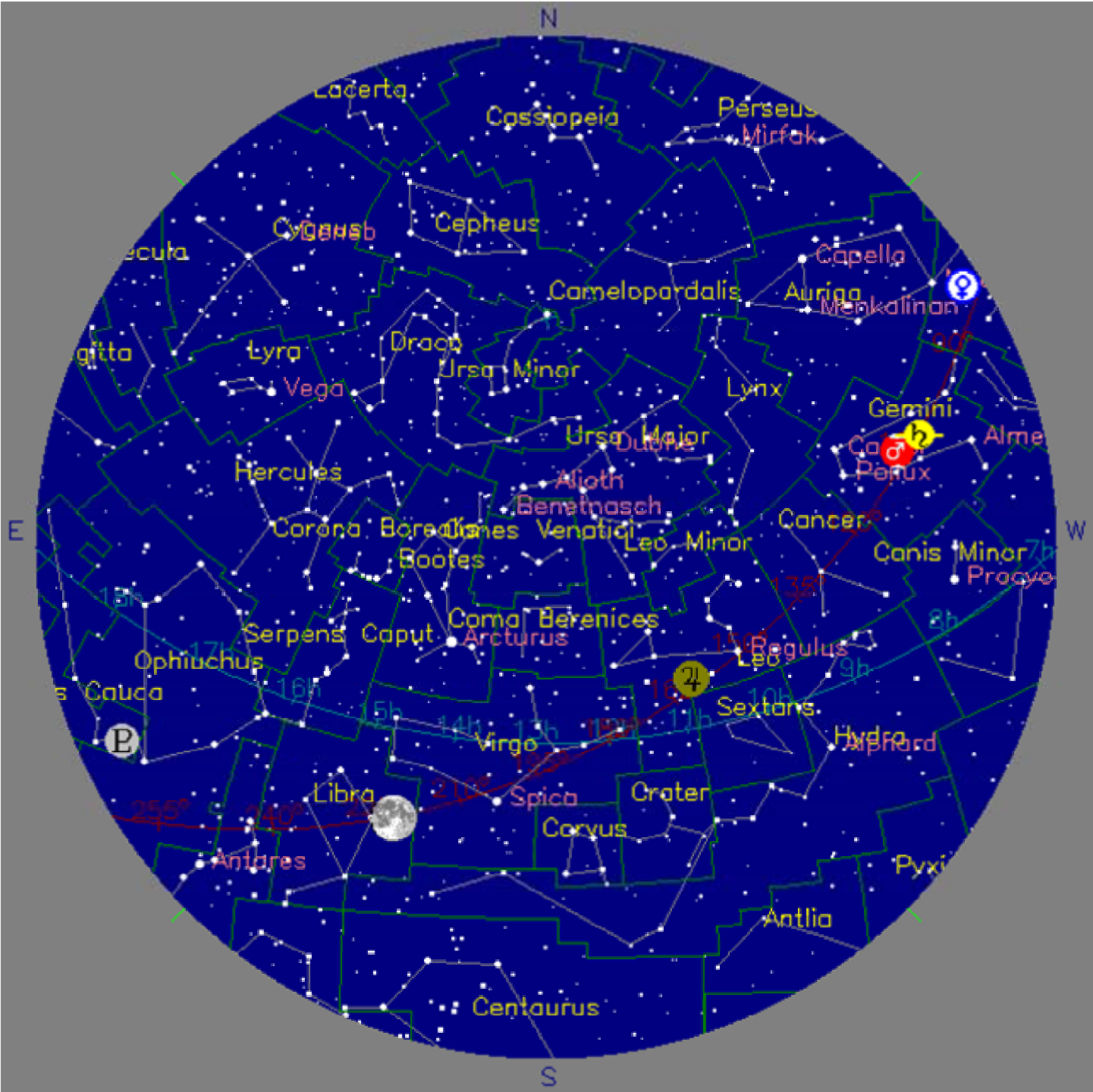
March 30, 2004 8:00pm CST



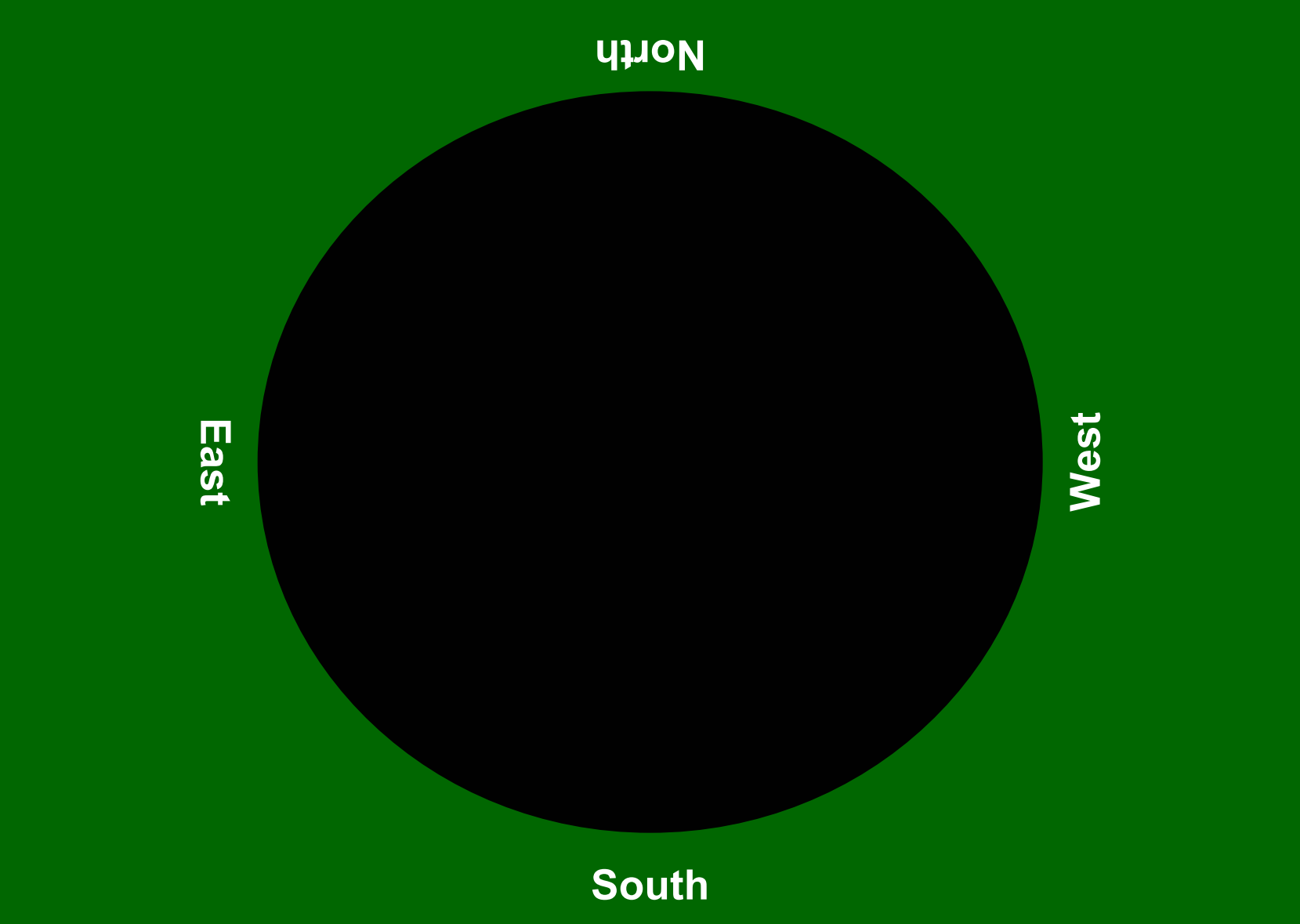
41°45'27\"N 87°38'21\"W



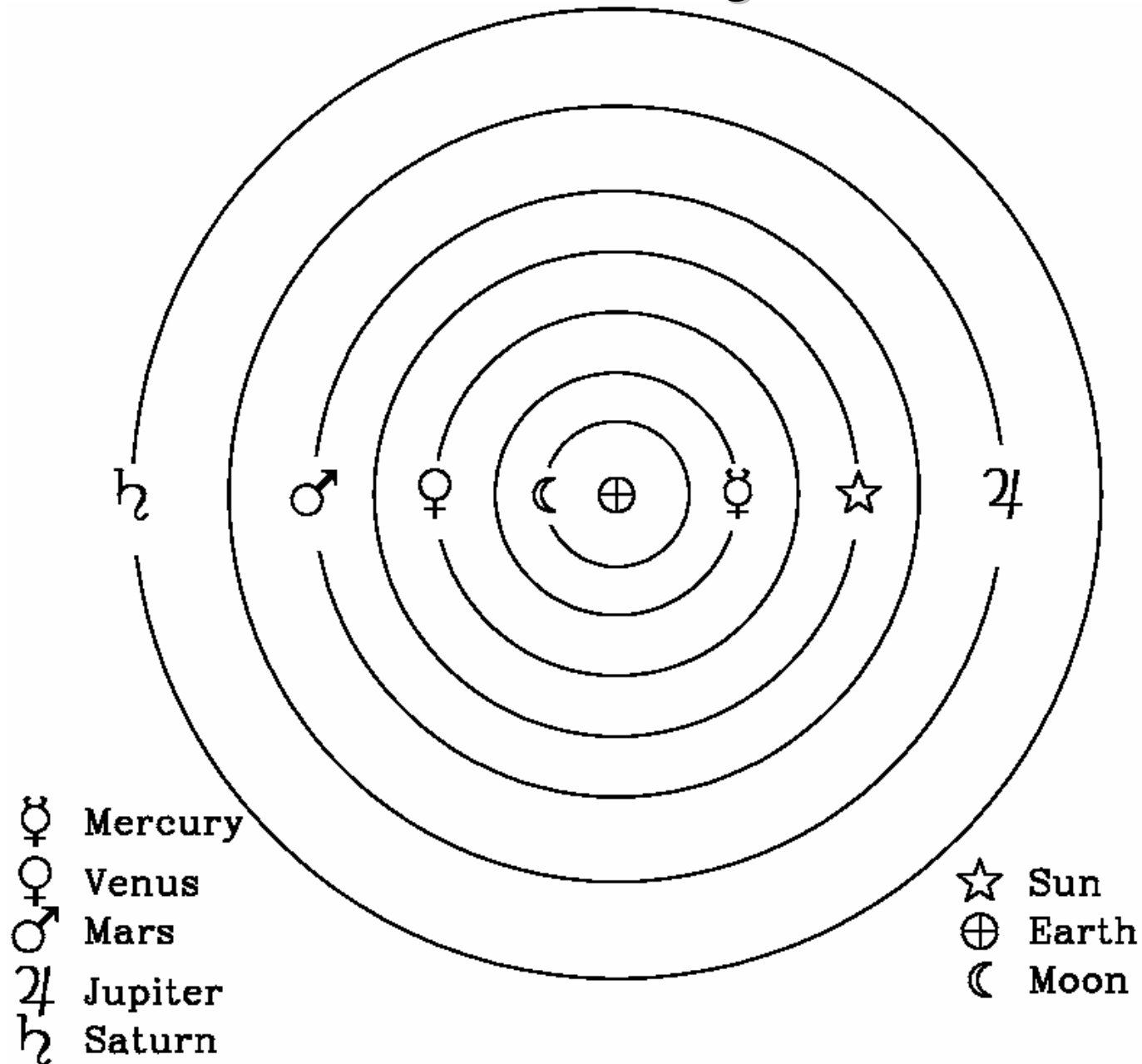
41°45'27"N 87°38'21"W



June 1, 2004 8:00pm CST



# The Universe According to Aristotle



N

VIRGO

Feb 1

May 1

15

Jun 1

Mar 1

15

15

15

E

15 Apr 1

$\lambda$

15

Jul 1

Spica

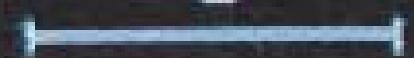
$\alpha$

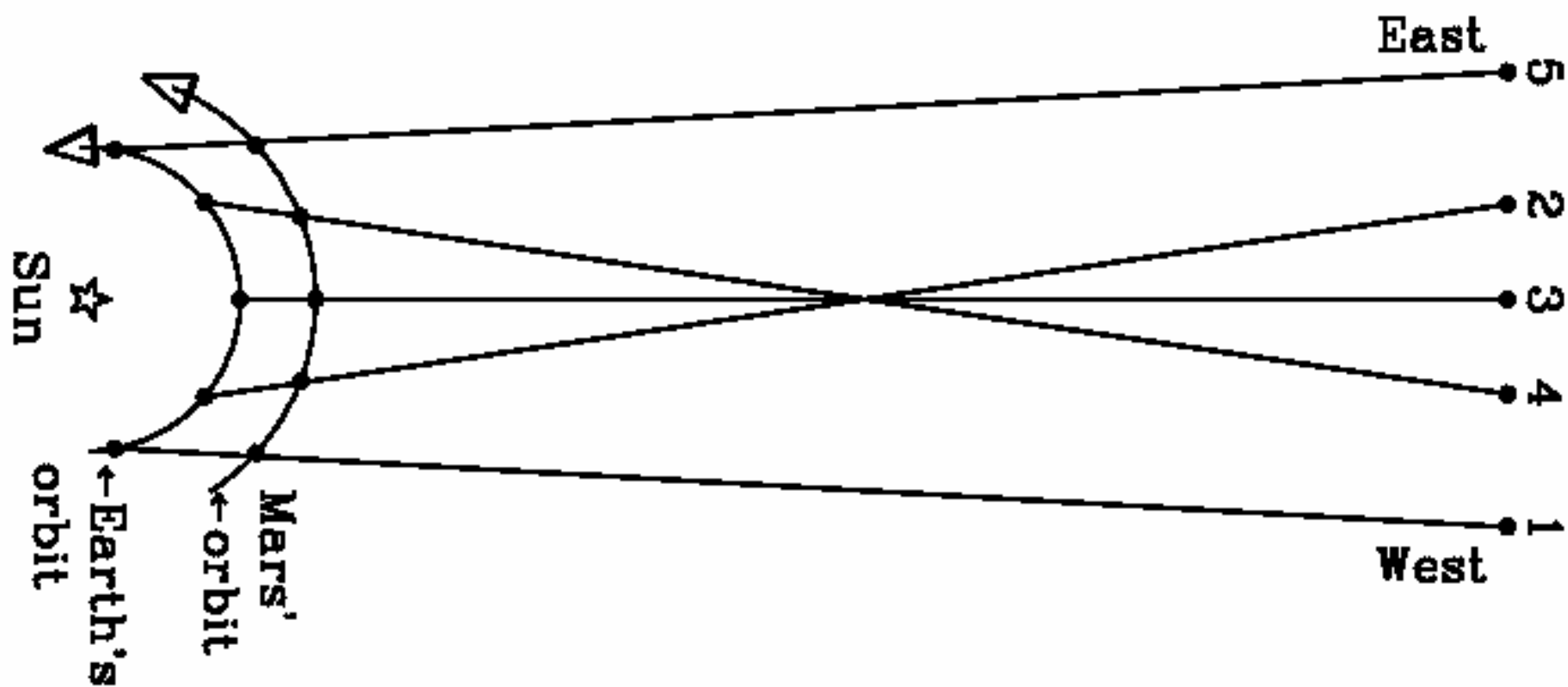
LIBRA

Aug 1

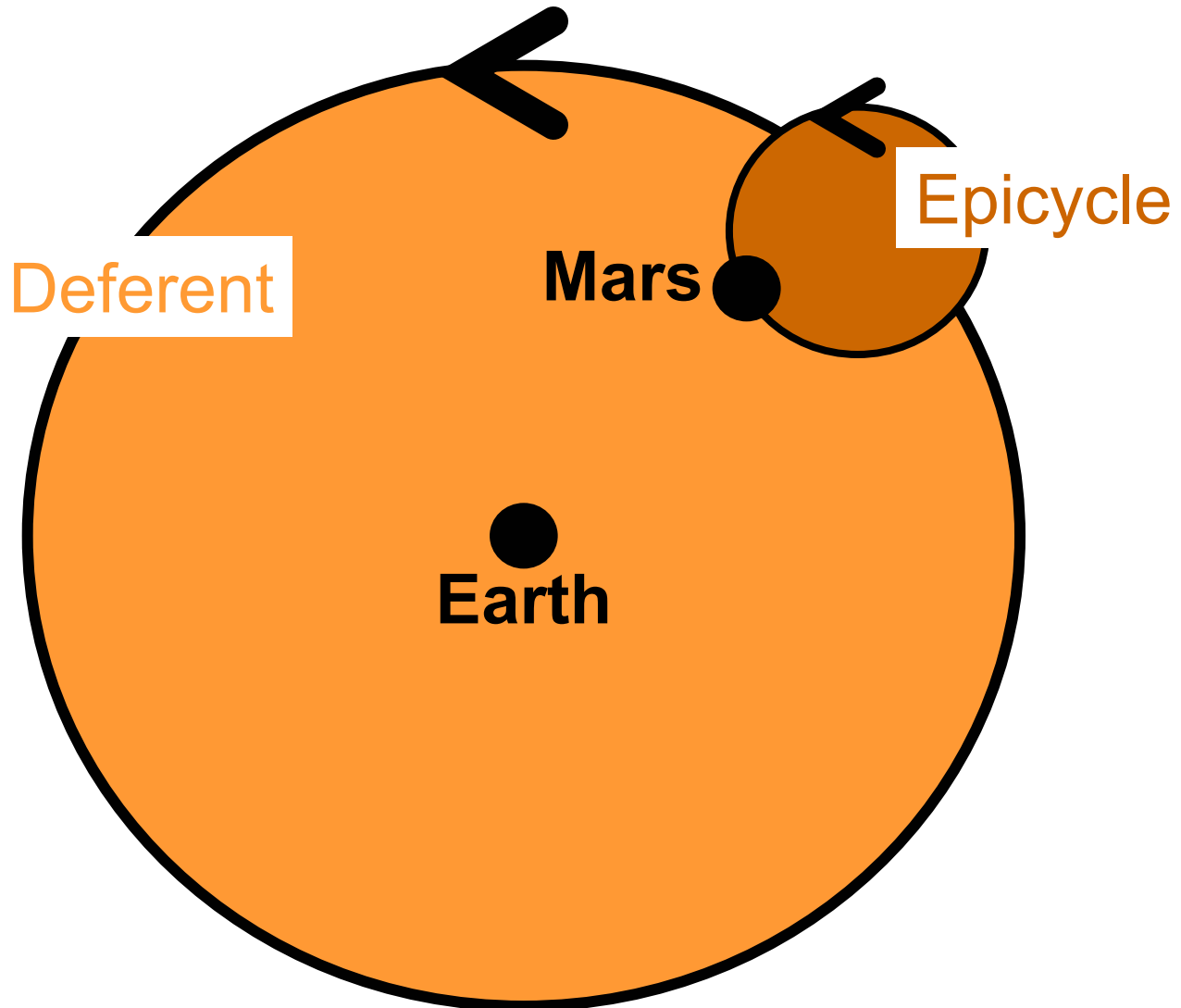
Path of Mars

5°





# The Ptolemaic Epicycle





# The Ptolemaic Epicycle

